10/586463

IAP11 Rec'd PCT/PTO 14 JUL 2006

COMBUSTIBLE PRODUCT AND PACKAGE

Field

Convenient combustible products and packages are designed for efficient burning and are able to be nested for storage and/or burning. In one example, a hollow cone of charcoal is adapted to be a complete, pre-manufactured package burned in a barbecue grill as fuel.

Background

Outdoor cooking is an immensely popular activity enjoyed by many people. The burning of combustible fuel pieces from coal to charcoal to wood chips is well known. Common applications include burning charcoal in a backyard barbeque and burning coal lumps in a fire place.

Commonly, the actual combustible material is sold and stored in bulk containers. For instance, a 10 or 20 lb bag of charcoal can be kept in a consumer's garage next to their grill. Chunks of coal or wood may also be shipped in heavy bag containers. In each case, a consumer dispenses a portion of the pieces of combustible material to be burned. For instance, the consumer may pour briquets from a charcoal bag into a grill then arrange them into a solid pyramid.

There are at least several problems with the foregoing state of the art of handling combustible materials. First, methods of the status quo typically require a consumer to handle a bulk of material such as a large

bag of charcoal or coal. These bags may be heavy and dirty. And second, the combustion of these materials is not very efficient. The classic "pile" of charcoal briquets in a grill burns slowly and inefficiently. This arrangement of charcoal typically requires some accelerant either applied onto or soaked into the briquet mixture. Also, airflow must be handled in order to achieve a quick and even burn. One mechanical solution that is available is a metal chimney that holds the charcoal briquets that, once burning, are subsequently dumped into a grill.

The use of combustible packages to neatly contain and efficiently promote the combustion of suitable materials for heat generation or outdoor cooking is also known. Such combustible packages include substantially vertically oriented designs as well as substantially horizontally oriented designs. However, deficiencies exist with these designs. At least two problems exist with a vertically oriented package:

a) Much of the content material is distanced from the ignition source leading to non-uniform heating, particularly on the outer edges of the content material.

b) The package becomes unstable as it is consumed by combustion and loses its structural integrity, allowing the contents to spill out and forfeit the benefit of concentration of heat and convection.

Problems with a horizontally oriented package include that the content material is spread out and offers no benefit of either 1) concentration of heat or 2) convection.

Summary

Accordingly, it is an object of the present invention to provide a convenient package and/or assembly that is designed to be ready to use and convenient to use for a consumer. Further, the package and/or assembly may facilitate the efficient air flow through the fuel to enhance the burning process.

In one example, a combustible product comprises a hollow cone of combustible material defining a substantially cone-shaped exterior and having a substantially cone-shaped interior space. The cone defines a large opening in the base of the cone and a small opening in the top of the cone. The cone is a single, integral piece of combustible material.

In another example, a combustible product comprises a hollow cone of combustible material, the hollow cone defining a substantially cone-shaped exterior and having a substantially cone-shaped interior space, the cone further defining a large opening in the base of the cone and small opening in the top of the cone. The cone comprises a plurality of combustible briquets secured to each other to form the cone shape.

In a still further example, a combustible package comprises a hollow, cone-shaped combustible package defining a large opening in the base of the package and a small opening in the top of the package. The package defines a substantially cone-shaped exterior and has a substantially cone-shaped interior space. The package is adapted to contain combustible material and includes combustible material placed inside the package. The cross-sectional width of the package with combustible material inside has an outside width at

the top of the package less than the width of the large opening at the base of the package.

Brief Description of the Drawings

Figure 1 is perspective view of an exemplary construction of a cone of combustible material.

Figure 2 is a side elevation, cross sectional view of Figure 1 taken along lines 2-2 of Figure 1.

Figure 3 is a perspective view of another example of a cone of combustible material.

Figure 4 is a perspective view of a pyramidal cone of combustible material.

Figure 5 is a perspective view of a pre-assembled cone of combustible material.

Figure 6 is a side elevation, cross sectional view of the cone shown in Figure 5 taken along lines 6-6 of Figure 5.

Figure 7 is a perspective view of an example of a packaged cone of combustible material.

Figure 8 is a side elevation, cross sectional view of the cone shown in Figure 7 taken along lines 8-8 of Figure 7.

Figure 9 is a side elevation, cross sectional view of a stack of three of the cones shown in Figures 7 and 8.

Figure 10 is a diagram illustrating the approximate relationship of cooking time, temperature and flavor variables for the selected food items and categories.

Figures 11A-D are drawings of a package cone as shown during different stages in the combustion process.

Figure 12 is a perspective view of an example of a preformed cone that forms the inside of a combustible package.

Figure 13 is another example of a cardboard cone that forms the inside of a combustible package.

Detailed Description

The present invention is directed to a product and package of combustible material that is easily stored and handled for use with cooking and heating. The hollow cone shape has a predetermined size, and it is combinable/nestable with other cones. The geometry of the cone itself is engineered for an efficient and effective burn of the combustible material.

Three examples of the combustible cone will be described herein. Of course, other hybrids and combinations of features of combustible products and packaging will be evident to those of skill in the art given the teachings herein. An important feature of each product and package is the hollow structure that improves the handling and storage. Another feature includes the openings at the top and bottom of the cone that form a nature flue for improved burning efficiency.

In general terms, the product simplifies and improves the preparation of fuel for burning in several ways. The product can be pre-measured in common units that are self-contained, thereby requiring no dispensing from a bulk container. The product is pre-shaped and does not require manual arrangement or the use of additional tools or accelerants to facilitate heating. The conical shape of the product allows for stacking of the pre-measured units for variable heating requirements. The hollow shape of the product and package and the optional bottom apertures create a natural flue enhancing the rate of heating and burning as compared to solid cylindrical or pyramidal shapes. The resulting, enhanced rate of burning lessens the need for accelerants which may pose safety, environmental or health risks and may adversely affect the flavor of the cooked food. In various examples described herein, accelerant may be applied to the bottom only of the product or package that would then allow the natural flue action to promote burning of upper portions of the cone. Alternatively, a combustible packaging material could replace the need for a separate accelerant altogether.

By providing for a hollow cone shape and/or sections of varying combustible properties, the present invention provides for a design that improves upon and yields the benefits of a substantially horizontally oriented package plus that of a vertically oriented package, while negating the deficiencies of both.

1. A benefit of a horizontally oriented package enjoyed by the present invention is that the content materials are spread out relative to and held in close proximity to the ignition source, maximizing the amount of material exposed to the ignition source surface, thereby minimizing time for initiation of combustion.

2. Benefits of a vertically oriented package that are also part of the examples of the present invention include the following:

a) The combustion of the materials within the package benefit from the natural convection during ignition. As the heat rises from material burning at the bottom, the material above is heated, thereby minimizing time for initiation of combustion.

b) The combustible materials within the package are surrounded by a greater number (mass) of combustible materials and therefore create a higher concentration of heat (vs. a horizontally oriented package). The greater concentration of heat better promotes ignition of all the materials, thereby minimizing time for combustion.

3. Benefits of the example of a hollow cone-shaped package:

a) Because the base of the cone-shaped package is wider than the top portion, the package provides greater stability during combustion as contents shift and portions are consumed by combustion, thereby

allowing the contents to remain contained in desired configuration and preserving natural flue effects.

b) The inner portion, being conical in shape, provides greater surface area than a substantially flat shape (of either horizontally or vertically oriented packages), thereby maximizing exposure to the contents for more efficient ignition.

4. Benefits of a package as described herein with varying combustible properties:

a) The package may be designed to delay the combustion of the outer portions thereby preventing the ignited contents from falling away or spreading out and losing the benefits of convection and/or concentration of heat.

b) The package may be designed to delay the combustion of the vent portions thereby preserving air flow and convection that promotes combustion of the contents.

c) The package may be designed to accelerate the combustion of the bottom and/or inner portions to ignite the contents.

d) The package may be designed to accelerate the combustion of the bottom and/or inner portions to influence the collapse of the entire structure and/or orientation of the contents in a manner that is advantageous to combustion – i.e., allow contents to fall into a pile for concentration of heat, etc.

Figures 1-3 illustrate an example of a pre-manufactured combustible product. Combustible product 10 is a cone of combustible material 11. The cone 10 is a hollow cone shape having a top opening 15 defined by the top edge 16 of combustible material. There is further a bottom opening 20 defined by the bottom edge 21 around the base of the cone 10. The cone 10 further includes apertures 30 in the side walls of the cone. These apertures provide for improved ventilation of the combustible material 11 when it is ignited. Also, the bottom edge 21 around the base of the cone 10 defines vents 25 that further enhance air flow through the hollow cone.

The air flow through the cone 10 is shown through the use of arrows in Figure 3. As the cone 10 ignites, heat will rise and draw air through the vents 26 and out through the top aperture 15. In Figure 3, the vents 26 are functionally identical to the vents 25 shown in Figures 1 and 2. Vents 26 (Figure 3) are merely slightly larger than vents 25 (Figure 1) to allow greater air flow.

In Figures 1-3, the cone 10 has a circular shape in that the base 21 of the cone substantially forms a circle. Alternatively, in Figure 4, there is shown a cone 40 having a pyramidal shape in which the base 51 of the cone has four substantially straight walls that generally form a square. In Figure 4, the cone 40 has combustible material 41 that define the walls of the cone. The hollow cone further has a top opening 45 defined by the top edge 46 of the cone and bottom opening 50 that is defined by the bottom edge 51 of the

cone. There are apertures 55 in the sidewalls as well as vents 56 along the base/bottom edge 51 of the cone 40.

The present invention is not limited by the geometry of the particular cone shape shown in the figures. Only a circular cone and four-sided pyramidal cone are illustrated. Other geometries may alternatively be used including a three sided pyramid, and a base having a five-sides, six-sides, or other geometries, including asymmetric geometries. The structure also includes dome or bullet shapes. The term "cone" or "cone-shaped" refers to all of these alternative geometric structures. Also, the cone-shaped exterior of the product or package is not necessarily the same geometric cone shape of the interior space. In other words, the walls of combustible material that define the exterior and the interior space of the product or package may have varying thicknesses. The only limitation of the various conical-shapes is that they are able to be stacked or nested on one another, to at least some degree, to allow for efficient storage and use.

As demonstrated in Figure 2, the material 11 forms the side walls of the cone 10 having varied thicknesses. This variability in the thickness of mass of the wall of the cone 10 provides for structural stability as well as improved and extended burning in which the relatively less massive sections burn through more quickly after igniting leaving the relatively more massive portions to burn more slowly, thereby providing a sustained heat source for cooking or heating. The walls may also be made thicker or more massive

toward the top or bottom of the cone. In one prototype embodiment, the cone 10 will have a weight of about 2.5 lbs. It is believed that cones having a weight of from about one pound to about five pounds may be convenient. The 2.5 pound cone is approximately equal to 40 charcoal briquets - - a common amount of charcoal used for outdoor grilling.

Manufacturing methods to form the combustible cone 10 include producing a solid wall of approximately 1.5 inches nominal width, which is shaped into the hollow cone. The solid wall can be formed with a series of grooves or apertures arranged such that their placement may create wall sections significantly thinner between larger sections of a nominal wall. Another manufacturing method could involve forming a combustible material into layered, circular rings of charcoal briquets. The briquets may be of relatively equal size and uniform shape, with each secured or otherwise connected to every adjacent briquet by a rib of sufficient size and thickness to allow air to pass between the briquets and to provide structural stability until the briquets are sufficiently heated. As seen in Figures 1-3, the combustible material 11 has a briquet-shaped contour and texture.

The combustible material 11 may include one or more or mixtures of different combustible materials including charcoal, coal, wood, sawdust, wax or other known combustible materials for cooking and heating. Particularly in the example of a combustion cone used in connection with grilling, there may be a desirable combination of charcoal and wood

products to obtain a desired taste. Also, a cone may have different layers or segments of different combustible material. For instance, the lower portion of a cone may be an easily combustible material such as a sawdust/wax mixture, while the upper portion of a cone may be charcoal or coal. Still further, accelerant may be applied to all or a portion of the cone to aid in initiating combustion of the cone.

Figures 5 and 6 illustrate an alternative example of a cone 70. The cone 70 is an assembly of combustible briquets 71. The cone 70 is made up of layers (rings) of combustible briquets 71 that form the cone-shape. This cone 70 is different from the previously-described cones 10 and 40 in that cone 70 is made up of individual pieces of combustible material 71. The cone 70 includes a top opening 75 defined by the top edge 76 of the cone. The cone 70 further includes a bottom opening 80 that is defined by the bottom edge 81 or base of the cone 70. The base 81 further defines vents 85 along the bottom of the cone 70. The assembly of individual combustible pieces 71 further defines side wall apertures 90 that improve air flow through the cone 70. As shown in Figures 5 and 6, the individual combustible pieces 71 are secured to adjacent pieces through a rigid or non-rigid material including, for instance, string, fiber or metal wire 72. Alternatively, the combustible pieces 71 may be formed in pre-connected rings or layers (four shown in Figures 5 and 6) that may be stacked on one another to form a cone shape. The size of cone may be varied by selecting

the number of rows (rings) of combustible pieces.

Still further alternatively, an assembled product may include securing the pieces 71 to adjacent pieces through use of adhesives. Preferably, the adhesive is comprised of a composition designed to itself burn without emitting toxic fumes. For instance, a paste of charcoal, wax, sawdust and wood may be used in one embodiment. The other binding materials such as metal wire, string or fiber may be rigid or non-rigid. They may be threaded through the combustible briquets 71 as shown.

The specific shape of the cone 70 and composition of the combustible material 71 are variable as described earlier herein.

Figures 7 and 8 illustrate a still further alternative of a combustible cone 100. The combustible cone 100 is a packaged embodiment wherein the package 101 contains combustible material in the form of briquets 120. The cone 100 includes an outer wall 125 and an inner wall 130 that define the conical shape of the outside of the cone as well as the inside space. The cone 100 includes a top opening 105 defined by the top edge 106 of the cone. The cone 100 further includes a bottom opening 110 defined by the bottom edge or base 111 of the cone 100. The base 111 further defines vents 115 along the bottom edge of the cone 100. As seen best in Figure 8, the combustible material 120 is made up of combustible briquets. In one example, those briquets are charcoal briquets. As noted earlier herein, the combustible material 120 may further include other materials such as coal,

wood, etc.

The inside wall 130 and the outside wall 125 of the cone 100 are fabricated, in one example, of a rigid material such as cardboard. This rigidity maintains the structural integrity of the cone 100. Alternatively, the inside wall 130 or the outside wall 125 only may be fabricated of a rigid material. The inside wall 130 and/or the outside wall 125 of the cone 100 are, in one example, a much less rigid paper packaging material. This flexible material must securely retain the combustible briquets 120 within the cone package 100. The top edge 106 and bottom edge 111 may also be made of paper or cardboard or they may merely be extensions of the inside or outside walls 125 or 130. The outside packaging material 125 may be used for printing and graphics for marketing and consumer purchase and use information. Preferably, all of the packaging material, both the inside wall 130 and outside wall 125 are made from a combustible material. Still further alternatively, the packaging material may be of a specific composition selected to enhance the flavor of foods cooked using the burning combustible material. The specific construction of the inside wall 130 and outside wall 125 of the cone 100 may vary depending on the size of the cone being packaged as well as on other requirements, marketing or otherwise of the cone. Also, the package 100 may alternatively include a handle attached to the cone package 100. Preferably, the handle is made of a combustible material such as paper or cardboard.

The specific shape of the cone 100 and composition of the combustible material 120 are variable as described earlier herein.

Figure 9 is an embodiment illustrating the "stackable" geometry of the cones described herein. The cones 100 illustrated are the same as the cones shown in Figure 8 of a packaged assembly. Figure 9 may equally represent the pre-manufactured and/or pre-assembled embodiments or any other embodiments of cone-shaped combustible material. In each case, the outside width 150 of the top of the cone is shown as having a length less than the length of the inside width 160 of the base of the cone shaped interior space within the cone. In this way, as shown, the cones 100 may nest with each other. With this nesting feature, a user may determine that they desire a larger fire than simply one combustible cone. A user may then choose to use two or more combustible cones together by stacking. As shown in Figure 9, there remains the flue effect of the central openings and hollow cone shape. Also, from a manufacturing and sales standpoint, the nesting feature makes the display and storage or combustible cones more efficient.

Also, as shown, the cones 100 nest into each other at about fifty percent of their height. Other geometries of the outside wall 125 and inside wall 130 may allow for varying degrees of "nestability". In other words, the cone shape may be flatter (relatively more broad base) or more pointed (relatively more narrow base). The walls may be relatively thicker in cross

section or relatively thinner. The exterior of a cone may be generally circular and the interior space may be generally pyramidal. The bottom line is that there are numerous geometries in the shape of the cone that will allow nesting.

There are different methods of varying the contents of the combustible product to create specific properties desirable for cooking varied foods, i.e., to create variations in flavor, heat, and/or cooking time tailored to different requirements for different foods. Different combustible materials burn at different rates and temperatures. It is well known by those practiced in the art that lump coal burns hotter and faster than charcoal briquets, which burn hotter than chunks of wood. The present method provides combustible cooking fuel packages tailored to the requirements of the foods being cooked by varying the contents, for example, as follows:

a) High-Heat Embodiment

In this embodiment, the combination of combustible material is a mix of approximately 30%-50% charcoal briquets with the remainder of lump coal. The material may be randomly dispersed within the product. This product would be packaged and sold for the intended purpose of cooking, for instance, beef and seafood steaks, hamburgers, vegetables and other foods that are typically seared and cooked over high heat and for a shorter period of time.

b) Low/Medium-Heat Embodiment

This embodiment would involve a combination of approximately 40%-60% charcoal briquets with the remainder aromatic woods. The aromatic woods may be positioned at the top portion of the product, serving to minimize its combustion during the ignition phase and extending its burning phase during cooking. This product would be packaged and sold for the intended purpose of cooking, for instance, chicken, sausage, ribs, and other foods that are typically cooked over lower heat for longer periods of time.

Each of the above embodiments may include aromatic woods or other aromatic combustible materials (dried herbs, spices, vegetables, etc.) that are suitable and complementary to specific foods. The following chart provides examples.

Food	**Lump Coal**	**Charcoal Briquets**	**Aromatic Wood**	**Other**
Steaks, hamburger, pork chops	50%-70%	30%-50%	None	none
Seafood	30%-50%	50%-60%	10%-20% Alder	Tarragon, Lemon
Poultry	None	50%-70%	30%-50% Hickory, Apple and/or Maple	Rosemary, Thyme
Roasts, ribs - beef, pork	None	50%-70%	30%-50% Hickory, Oak	Thyme
Vegetables	30%-50%	50%-60%	10%-20% Hickory	Rosemary, Thyme, Oregano

Other variations with respect to the combination of different

combustible materials are possible and may be specially developed for any purpose including specific recipes, specific cooking environments (grills, campfires, etc.) and other variables. Figure 10 is a diagram that illustrates approximate relationships between cooking variables for selected food types.

The package material for any of the manufactured, assembled or packaged embodiments described herein may be engineered to efficiently and evenly ignite the combustible material. Of course the packaging is typically combustible and is preferably consumed during the process of igniting the primary combustible material, e.g., charcoal, coal, etc. However, particularly in the example of the packaged embodiment, the package material must not combust too quickly or the cone collapses before enough of the briquets or other combustible material are ignited. To solve these issues, the packaging material may have different sections with different degrees of combustibility. In one example, the packaging material that defines the inside of the cone may be fabricated of a combustible material (paper or cardboard) that is coated or impregnated with an accelerant to help rapidly ignite the combustible material. The outside of the cone, on the other hand, is impregnated with a fire retardant. In this way, the integrity of the cone shape and the benefits of the resulting flue effect are maintained for additional time (as compared with an untreated combustible package) to allow greater ignition of the charcoal before the entire cone, including the outside of the cone, collapses. In another example, the packaging that

defines the outside of the cone may likewise be engineered without regard to the inside of the package. The outside can be coated or impregnated with fire retardant to burn off relatively slowly to prevent the packaged charcoal or other fuel from collapsing outwardly before it is ignited.

In addition to the inside/outside sectional treatment described above, there may also be different sectional treatment with respect to the vertical height of the cone. For instance, an accelerant may be added to a bottom section of the package to better initiate burning of the fuel. Other strategies and benefits of differential sectional flammability of the packaging will be apparent to those designing combustible packages for different purposes. And further, the benefits of different sectional treatment of the packaging component of a combustible package extend to all packages, and not just the cone-shaped packages discussed herein.

The sectional treatment of a combustible package has been discussed to this point in the context of a cone-shaped package. However, any hollow combustible package that defines an opening in the base of the package and an opening in the top of the package and a substantially open interior space extending from the base opening to the top opening may benefit from the sectional treatment described herein. In other words, for instance, a more cylindrical or square or other geometric shape that has a flue or other open interior space that extends from top to bottom of the package may benefit from the teachings of different sectional combustibility. There may be the

inside/outside sectional treatment or the sectional treatment with respect to the vertical height of a package as noted herein.

Figures 11A-D demonstrate an example of a package embodiment of a combustible cone 171. Figure 11A illustrates the cone 171 before initial ignition of the cone. Cone 171 includes an inside section 170 that defines the cone-shaped interior space of the cone. The inside section 170 of the packaging is fabricated of a paper and cardboard material that is coated with a wax that acts as an accelerant. Outside section 175 defines the substantially cone-shaped exterior of the packaged cone 171. Charcoal briquets 180 are shown as the combustible material contained within the packaged cone 171. The bottom edge of the cone 171 defines vents 185. The hollow cone structure with the vents 185 create a flue effect during combustion.

Figure 11B shows the first stage of ignition where the inside section 170 of the package 171 is ignited and burns. The combustion of the inside section 170 ignites the charcoal briquets 180. Also in 11B is shown the arrows that indicate air flow through the vents 185 and upwardly through the flue formed by the cone 171.

Figure 11C illustrates the second stage of combustion where the inside section of the cone has disappeared after being combusted and the charcoal briquets 180 have collapsed within the outer section 175 of the cone structure of the cone 171. The collapsed briquets 180 still receive the

benefit of the flue effect of air passing through the hollow cone.

Figure 11D illustrates the final stage of combustion of the cone where the outer section 175 of the package that has been treated with a flame retardant finally combusts and is consumed. The pile that remains is a reasonably fully ignited pile of charcoal briquets 180. In an embodiment of a packaged cone for use in a backyard grill, the entire combustion process from initial ignition to relatively complete combustion of the package is about six to ten minutes.

Fire retardancy can be achieved by applying any of a number of known liquid solutions with flame retardant properties to a base material. Such solutions can be purchased from suppliers or made from readily available materials. Some methods include applying a non-toxic water-based solution of flame retardant substance, such as borax, boric acid, or phosphoric-based elements, to cardboard or other paper-based material via spray applicator or by submersion. Alternately, non-liquid compounds with flame retardant properties, such as aluminatrihydrate, can be incorporated into cardboard or paper-based material during the process of manufacturing. Such materials can then be purchased from the manufacturer.

Still further alternatively, increasing the thickness and/or density of the outer material prolongs the heat transfer throughout the material, thereby delaying complete combustion. Using thicker/denser material for

the outer portion of the package will achieve this. Alternate methods may involve adding water, or other heat absorbing liquid, into the outer base material and applying a coating or covering to contain the moisture. Once the coating or covering has been consumed by combustion, the added moisture in the base material will absorb considerable heat before the base material heats sufficiently to ignite – thereby, delaying combustion. Other methods may involve shaping the outer packaging material to minimize exposure to sustained heat from burning contents. Such shapes may include protrusions, ribs or other patterns that effectively hold the contents inward, but do not allow them to touch the primary surface of the outer material.

In a still further example, a noncombustible material such as foil may be used to obtain a desired geometry. The foil may be later disposed of after the fuel is consumed.

A combustible package, and especially the inside section or wall, but realistically any part thereof, be preformed of cardboard or pulp material to obtain a specific shape and size of a combustible package. By preforming, it is also possible to remove seams and make one part versus multiple parts during the manufacture of a package. This simplifies assembly and also reduces dust that may escape from the package otherwise.

Figure 12 displays a preformed inside section 190 of a combustible package. The inside section 190 is comprised of a molded, thick cardboard

material. The cardboard material is up to approximately 1/4 inch thick. The inside section 190 includes a hollow conical portion 192 and integral base portion 196. There are five vents 194 shown. In one example, this inside section 190 will be coated with a wax accelerant to enhance the burning process. The vents 194 are formed in the base portion 196 to enhance the flue action of the air flow through the hollow cone.

Figure 13 displays another example of an integral, preformed cardboard inside section 200 of a combustible package. In this embodiment the cardboard section 200 is relatively thin. The cone portion 202 and the base portion 206 may be fluted as shown to maximize surface area and promote combustion of the package contents. The base portion 206 also includes vents 204 around the circumference. As in the embodiment shown in Figure 12, the inside section 200 will often be coated with wax or other accelerant to increase the speed of ignition of the larger combustible package.

While Figures 12 and 13 demonstrate examples of preformed inside sections as described, other structures may be created for other specific purposes. Likewise, it is possible to engineer an integral outside section of a combustible package. Still further, other sections of a combustible package may be preformed. The preformed components may be coated or impregnated with fire retardant materials or, alternatively, with accelerants in order to address different purposes of the combustible package.

While the invention has been described with reference to specific embodiments thereof, it will be understood that numerous variations, modifications and additional embodiments are possible, and all such variations, modifications, and embodiments are to be regarded as being within the spirit and scope of the invention.